The Effect of Awareness of The COVID19 Pandemic and Health Literacy Levels on Healthy Lifestyle Behaviors

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ABSTRACT

It can be argued that the COVID-19 outbreak has created awareness in terms of understanding the importance of health, hygiene, financial, and spiritual well-being. In this study, it was aimed to determine the awareness levels of university students about the COVID-19 outbreak and whether their health literacy levels have an effect on their healthy lifestyle behaviors. The population of the study consists of 5829 associate degree students enrolled in vocational schools within Bilecik Şeyh Edebali University in the 2021-2022 academic year. The convenience sampling method, which is a non-random sampling method, was used in the data collection. The sample size in this study was 457 individuals. The data obtained in the study were evaluated through the SPSS 22.0 statistical software in a computer environment. When the regression analysis of the study was examined, a significant cause-and-effect relationship was found between following the news and developments, being affected by work life, having concerns, taking precautions, health literacy, and healthy lifestyle behaviors. Therefore, health literacy needs to be adapted and integrated into daily life for COVID-19 and similar infectious diseases. The findings of this study can provide valuable insights for the development of public health policies and health communication strategies. Strengthening health awareness and enhancing health literacy during and after the pandemic can be critical steps to promote and sustain healthy lifestyle behaviors. By implementing effective measures, society can strive for improved health outcomes and better preparedness for future health challenges.

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INTRODUCTION

Due to the COVID-19 crisis, a pandemic disease that broke out in November 2019 and dominated the world's agenda for a considerable period, people have harbored high expectations of exercising control over their own health. It is emphasized that knowing the risk factors of epidemic diseases is of great importance in managing and preventing the destructive consequences of the disease (Abel & McQueen, 2020). Furthermore, customary lifestyle habits have been significantly disrupted due to the restrictions imposed as a result of COVID-19. These restrictions are noted to negatively impact healthy lifestyle behaviours (Lucini et al., 2020). However, it is also stressed that assuming individual and societal responsibilities is essential to preventing the COVID-19 disease. Globally, extensive efforts are being made to combat the COVID-19 pandemic and curtail its spread, with coordination enabled at the national and international levels to minimize the risk of infection (Paakkari & Okan, 2020). Similar to other nations, the Ministry of Health in Turkey developed a diagnostic algorithm and made an effort to identify possible cases. (Gemlik et al., 2021). At the First International Conference on Health Promotion held in Ottawa in 1986, action principles and guidelines for promoting and enhancing health were defined and outlined. The Ottawa Charter described health promotion as "the process of enabling people to increase control over, and to improve their health." In order to achieve complete physical, mental, and social well-being, individuals and communities should be able to identify and achieve their aspirations, meet their needs, and adapt to or change environmental conditions. Therefore, health is perceived not only as a purpose of existence but also as the resource for everyday life (Kickbusch et al., 2013). It is only when individuals can exert control over their circumstances and conditions that they can fulfill their full health potential. It is claimed that people's access to the right information sources, and their ability to interpret and implement this information correctly is associated with health literacy. Thus, enhancing individuals' health literacy levels is vital for controlling and preventing the COVID-19 pandemic (Kaya & Kaplan, 2020).

Literature Review

Healthy Lifestyle

The World Health Organization (WHO) emphasizes that 60% of an individual's health and quality of life are related to their behavior and lifestyle (WHO, 2004). Health-risk behaviors are activities that increase a person's vulnerability or sensitivity to adverse health outcomes (Engle et al., 1996). In contrast, health-promoting behaviors are described as a way to approach life positively and enhance self-fulfillment (Wang et al., 2009). Numerous studies have demonstrated that adopting health-promoting behaviors reduces the occurrence of diseases and lowers mortality rates (Sanci et al., 2000; Wainwright et al., 2000). Health-promoting behavior is dependent on the lifestyle habits adopted during the early years (Wang et al., 2009).

The concept of a healthy lifestyle emerged in the literature in the 1980s, and subsequently, various models were developed to contribute to its development. It can be observed that the concept of health promotion serves as a reference when expressing the concept of a healthy lifestyle (Pender, 1987; Pender et al., 1990; Pender et al., 1992; Johnson, 2005). The value of promoting and enhancing health as a method of improving health for all individuals was emphasized through the Declaration of Alma-Ata, which set global health goals (WHO, 1978). Pender, Murdaugh, and Parsons (2006) defined health promotion as "a behavior motivated by the desire to increase well-being and actualize human health potential." Healthy lifestyle behaviors encompass actions driven by health-promoting activities and the desire to be healthy (Pender et al., 1992). Studies indicate that a health-promoting lifestyle reduces both mortality and morbidity while preventing chronic diseases such as heart disease and cancer (Wang et al., 2009). Health-promoting behaviors include health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management. These behaviors are considered as the indicators of an individual's health-promoting lifestyle (Savadatti, 2015). Walker, Sechrist, and Pender (1987) describe a health-promoting lifestyle as a multidimensional model of actions and perceptions initiated by the individual, serving to maintain or enhance one's well-being, self-fulfillment, and satisfaction level. In addition to personal actions and perceptions, socioeconomic conditions and environmental influences also affect a health-promoting lifestyle (Savadatti, 2015).

Health Literacy

When reviewing the literature, it can be observed that the concept of health literacy has been used for approximately fifty years. Particularly in the United States, this term is used to define and explain the relationship between patients' literacy levels and their ability to adhere to therapeutic practices (Ad Hoc Committee on Health Literacy, 1999). Health literacy refers to the ability to comprehend health-related materials such as prescriptions, appointment cards, medication labels, and home health care instructions (Parker et al., 1995). Research based on this definition demonstrates that inadequate functional health literacy poses a significant barrier in the education of patients with chronic diseases and can lead to incorrect or insufficient medication use, resulting in substantial costs to the healthcare sector (National Academy on an Aging Society/Center for Health Care Strategies, 1998). Health literacy refers to the cognitive and social skills that determine individuals' motivation and abilities to access, understand, and use information to protect and improve their health. Beyond being able to

read brochures and successfully schedule appointments, health literacy requires the capacity to comprehend and effectively utilize the information. Enhancing individuals' access to health information and their ability to use it effectively, health literacy holds critical importance in terms of empowerment (Nutbeam, 2000).

Health literacy skills are dynamic. They change over time based on individual capabilities, experiences, and alterations in the healthcare system. Health literacy is a continuously evolving concept that has been recently recognized as an intersecting priority in the delivery of safe and high-quality health services (Parnell, 2014). The rapid transformation of the 2019 coronavirus disease (COVID-19) into a pandemic has compelled individuals to acquire health information, apply it, and swiftly adapt their behaviors (Zarocostas, 2020).

MATERIAL AND METHOD

Purpose of the research

It can be argued that the COVID-19 pandemic has created awareness regarding the significance of well-being in terms of health, hygiene, material, and spiritual aspects. Keeping up with news and developments during the pandemic, the impact of the pandemic on work life, the scope of worries related to the pandemic, and the steps taken to prevent it are some examples of factors that show these awareness levels. Individuals are thought to need at least a basic level of health-related information and the ability to apply it when engaging in these activities. Additionally, there are several factors that represent healthy lifestyle behaviors, such as health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management. In this study, the existence of awareness regarding the COVID-19 pandemic and health literacy consciousness are investigated to understand whether they influence individuals' healthy lifestyle behaviors. Accordingly, the objective of the research is to determine the impact of awareness levels and health literacy levels related to the COVID-19 pandemic among students at Bilecik Seyh Edebali University on their healthy lifestyle behaviors.

Population and Sample

The population of the study consists of 5829 associate degree students enrolled in vocational schools within Bilecik Şeyh Edebali University in the 2021-2022 academic year. Data were collected between April 2022 and June 2022 through an online survey made on Google Forms. Convenience sampling, a non-random sampling method, was used for data collection. This method is useful when a good sampling frame is available and the population is geographically concentrated in a particular region (De Vaus, 1990). The sample size for this study was 457 individuals. The following formula was applied to determine whether the sample size was sufficient (Evans et al., 2007).

$$n = \frac{Nt^2pq}{d^2\,(N-1) + t^2pq}$$

$$n = \frac{5829 * 1{,}96 * 0{,}5^2}{0{,}05^2(5829-1) + 1{,}96^2 * 0{,}5^2} = 197\ person$$

As determined in the calculation, 457 people selected from the main mass meet the quorum for the analysis of the study.

Data Collection Tools

In the data collection process, four instruments were utilized. The following instruments were the “Individual Information Form”, the “COVID-19 Current Situation, Knowledge, and Awareness Form” (Ertas et al., 2021), the “Healthy Lifestyle Behaviors Scale-II” (Bahar et al., 2008), and the 'Turkey Health Literacy Scale-32” (Okyay and Abacigil, 2016)."

The "COVID-19 Current Situation, Knowledge, and Awareness Form" was designed to determine the public's knowledge level and awareness of the COVID-19 pandemic during its initial outbreak. The "Healthy Lifestyle Behaviors Scale Behaviours II" was employed to understand participants' healthy lifestyle behaviors. The Turkish Health Literacy Scale-32" was developed to generate scenarios that highlight the processes of accessing, comprehending, evaluating, and applying health-related information, as well as to assess the use of scenarios in health literacy evaluation (Okyay and Abacigil, 2016). In a previous study conducted by Bahar et al. (2008) related to the "Healthy Lifestyle Behaviors Scale-II," they calculated a reliability coefficient of 0.94. Moreover, the reliability values of the subscales ranged from 0.79 to 0.87. Okyay and Abacigil (2016) determined a reliability coefficient of 0.927 for the Turkish Health Literacy Scale-32" in their own study.

The analysis of Data

The data obtained in the research were evaluated using the SPSS 22.0 statistical software in a computer environment. Descriptive statistics such as frequency and percentage analyses were used to determine the characteristics of the participants. Mean and standard deviation statistics were used in the analysis of the scales. Kurtosis and Skewness values were examined in order to determine whether the research variables showed a normal distribution. (Table 2). According to relevant literature, results within +1.5 to -1.5 (Tabachnick and Fidell, 2013) or +2.0 to -2.0 (George and Mallery, 2010) for Kurtosis and Skewness values are considered to indicate a normal distribution. It was found that the research variables exhibited a normal distribution. Parametric tests were employed for data analysis.

The relationships between the dimensions determining the scale levels of the participants were examined using correlation and regression analyses. Correlation coefficients (r) were evaluated as follows: 0.00-0.25 very weak, 0.26-0.49 weak, 0.50-0.69 moderate, 0.70-0.89 high, and 0.90-1.00 very high (Kalayci, 2006). In order to investigate the variations in scale levels based on the students' descriptive characteristics, t-tests, one-way analysis of variance (ANOVA), and post hoc (Tukey, LSD) analyses were utilized. Cohen's d and Eta-squared (η^2) coefficients were used to calculate the effect size. The effect size indicates whether there is a significant and considerable difference between the groups. Cohen's value of 0.2 is considered small, 0.5 is moderate, and 0.8 is large, while the Eta-squared value of 0.01 is small, 0.06 is moderate, and 0.14 is large (Buyukozturk et al., 2018).

RESULTS

Findings regarding the descriptive characteristics of the participants are given below.

Table 1. The distribution of Participants by Descriptive Characteristics

Groups	Frequency (n)	Percent (%)
Gender		
Female	281	61,5
Male	176	38,5
Class (associate degree)		
First Grade	244	53,4
Second Grade	213	46,6
Mother's Education Status		
Primary or Secondary School	360	78,8
High School	75	16,4
College and above	22	4,8
Father's Educational Status		
Primary or Secondary School	282	61,7
High School	147	32,2
College and above	28	6,1
Income status		
2500 TL and Under	49	10,7
2501-4500	151	33,0
4501-7000	141	30,9
7001-10000	64	14,0
10001 and above	52	11,4

The students are distributed as follows based on gender: 281 (61.5%) are female, and 176 (38.5%) are male. Regarding their academic year, 244 (53.4%) are in the first grade, and 213 (46.6%) are in the second grade. In terms of mother's education level, 360 (78.8%) have completed primary or middle school, 75 (16.4%) have completed high school, and 22 (4.8%) have completed college or higher education. As for father's education level, 282 (61.7%) have completed primary or middle school, 147 (32.2%) have completed high school, and 28 (6.1%) have completed college or higher education. Concerning income levels, 49 students (10.7%) have an income of 2500 TL and below, 151 (33.0%) have an income between 2501 and 4500 TL, 141 (30.9%) have an income between 4501 and 7000 TL, 64 (14.0%) have an income between 7001 and 10000 TL, and 52 (11.4%) have an income of 10001 TL and above. Regarding COVID-19 awareness, health literacy, and healthy lifestyle behaviors, the arithmetic mean, standard deviation, and minimum-maximum levels are provided below.

Table 2. COVID-19 Awareness, Health Literacy, and Healthy Lifestyle Behaviors Mean Scores

	N	Average	Sd	Min.	Max.	Kurtosis	Skewness	Alpha
News and Development Tracking	457	1,949	0,401	1,000	3,000	0,749	0,297	0,723
Impact on Work Life	457	2,374	0,463	1,000	3,000	-0,203	-0,618	0,785
Concern	457	2,438	0,503	1,000	3,000	0,022	-0,932	0,803
Precautionary Measures	457	2,336	0,354	1,250	3,000	0,182	-0,078	0,796
Health Literacy	457	39,405	8,313	11,720	50,000	0,972	-0,987	0,967
Health Responsibility	457	18,267	5,057	9,000	34,000	-0,442	0,233	0,912
Physical Activity	457	16,361	5,584	8,000	30,000	-0,553	0,413	0,932
Nutrition	457	18,409	4,772	9,000	32,000	-0,280	0,260	0,947
Spiritual Development	457	23,024	6,670	9,000	36,000	-0,366	-0,173	0,921
Interpersonal Relationships	457	22,481	5,936	9,000	36,000	-0,205	-0,247	0,938
Stress Management	457	17,398	4,996	8,000	32,000	-0,196	0,238	0,930
Total Healthy Lifestyle Behaviors	457	115,941	27,578	52,000	190,000	-0,160	-0,140	0,956

The students mean scores and standard deviations for each variable are as follows:
Impact on Work Life: Mean = 2.374, SD = 0.463 (Min = 1, Max = 3)
Concern: Mean = 2.438, SD = 0.503 (Min = 1, Max = 3)
Precautionary Measures: Mean = 2.336, SD = 0.354 (Min = 1.25, Max = 3)
Health Literacy: Mean = 39.405, SD = 8.313 (Min = 11.72, Max = 50)
Physical Activity: Mean = 16.361, SD = 5.584 (Min = 8, Max = 30)

Nutrition: Mean = 18.409, SD = 4.772 (Min = 9, Max = 32)
Stress Management: Mean = 17.398, SD = 4.996 (Min = 8, Max = 32)
Total Healthy Lifestyle Behaviors: Mean = 115.941, SD = 27.578 (Min = 52, Max = 190).

When the averages are examined, it is seen that the averages of health literacy are high and the averages of healthy living behaviors are low. The fact that the mean of health literacy is high and the mean of healthy living behaviors is low may indicate that individuals may have health-related knowledge, but they have difficulty in putting this knowledge into practice. This may indicate that although individuals are conscious and do not have problems in accessing health-related information, there are deficiencies in adopting and maintaining healthy behaviors.

Table 3. Shows the correlation analysis between COVID-19 Awareness, Health Literacy, and Healthy Lifestyle Behavior Scores

		News and Development Tracking	**Impact on Work Life**	**Concern**	**Precautionary Measures**	**Health Literacy**
Health Responsibility	r	0,024	0,040	0,090	0,009	0,004
	p	0,611	0,397	0,056	0,853	0,938
Physical Activity	r	0,016	-0,074	-0,174**	-0,183**	0,013
	p	0,728	0,116	0,000	0,000	0,774
Nutrition	r	0,067	0,044	-0,032	0,069	0,046
	p	0,151	0,349	0,501	0,143	0,328
Spiritual Development	r	-0,100*	-0,051	-0,228**	-0,045	-0,101*
	p	0,032	0,278	0,000	0,334	0,031
Interpersonal Relationships	r	-0,113*	0,007	-0,138**	-0,122**	-0,052
	p	0,015	0,882	0,003	0,009	0,265
Stress Management	r	0,016	-0,033	-0,206**	-0,045	0,013
	p	0,731	0,482	0,000	0,339	0,789
Total Healthy Lifestyle Behaviors	r	-0,026	-0,017	-0,147**	-0,069	-0,022
	p	0,573	0,720	0,002	0,141	0,639
Significant at; *p < 0.05 ** p < 0.01						

The correlation analysis between the variables "news and developments tracking," "impact on work life," "concern," "precautionary measures," "health literacy," "health responsibility," "physical activity," "nutrition," "spiritual development," "interpersonal relationships," "stress management," and "total healthy lifestyle behaviour scores" showed the following results:
Significant Negative Weak Correlations:
Physical Activity and Concern: r = -0.174, p < 0.05
Physical Activity and Precautionary Measures: r = -0.183, p < 0.05
Spiritual Development and News and Developments Tracking: r = -0.100, p < 0.05
Spiritual Development and Concern: r = -0.228, p < 0.05
Spiritual Development and Health Literacy: r = -0.101, p < 0.05
Interpersonal Relationships and News and Developments Tracking: r = -0.113, p < 0.05
Interpersonal Relationships and Concerns: r = -0.138, p < 0.05
Interpersonal Relationships and Precautionary Measures: r = -0.122, p < 0.05
Stress Management and Concern: r = -0.206, p < 0.05
Total Healthy Lifestyle Behaviors and Concerns: r = -0.147, p < 0.05.

In summary, there were significant weak negative correlations between some of the variables, mainly involving "physical activity," "spiritual development," "interpersonal relationships," "stress management," and "total healthy lifestyle behaviors," with "concern," "news and developments tracking," and "precautionary measures." However, other variables did not show statistically significant correlations.

Table 4. The Effect of COVID-19 Awareness and Health Literacy on Healthy Lifestyle Behaviors

Dependent Variables	**Independent Variables**	**ß**	**t**	**p**	**F**	**Model (p)**	**R^2**
Health Responsibility	Fixed	16,463	7,765	0,000	0,848	0,516	0,002
	News and Development Tracking	0,369	0,586	0,559			
	Impact on Work Life	-0,059	-0,101	0,920			
	Concern	1,026	1,817	0,070			

	Precautionary Measures	-0,450	-0,594	0,553			
	Health Literacy	-0,006	-0,192	0,848			
Physical Activity	Fixed	22,498	9,849	0,000	5,448	0,000	0,047
	News and Development Tracking	0,988	1,455	0,146			
	Impact on Work Life	0,274	0,433	0,665			
	Concern	-1,548	-2,546	0,011			
	Precautionary Measures	-2,796	-3,428	0,001			
	Health Literacy	0,040	1,261	0,208			
Nutrition	Fixed	14,926	7,483	0,000	1,417	0,217	0,005
	News and Development Tracking	0,483	0,814	0,416			
	Impact on Work Life	0,792	1,433	0,153			
	Concern	-0,932	-1,755	0,080			
	Precautionary Measures	0,873	1,226	0,221			
	Health Literacy	0,023	0,810	0,418			
Spiritual Development	Fixed	31,152	11,505	0,000	6,923	0,000	0,061
	News and Development Tracking	-1,687	-2,095	0,037			
	Impact on Work Life	1,026	1,367	0,172			
	Concern	-3,617	-5,018	0,000			
	Precautionary Measures	1,465	1,515	0,130			
	Health Literacy	-0,048	-1,257	0,210			
Interpersonal Relationships	Fixed	28,890	11,793	0,000	3,788	0,002	0,030
	News and Development Tracking	-1,336	-1,834	0,067			
	Impact on Work Life	1,301	1,916	0,056			
	Concern	-1,908	-2,925	0,004			
	Precautionary Measures	-0,980	-1,120	0,263			
	Health Literacy	0,001	0,036	0,972			
Stress Management	Fixed	19,610	9,566	0,000	4,869	0,000	0,041
	News and Development Tracking	0,204	0,334	0,738			
	Impact on Work Life	0,970	1,708	0,088			
	Concern	-2,585	-4,737	0,000			
	Precautionary Measures	0,126	0,172	0,864			
	Health Literacy	0,028	0,968	0,334			
Total Healthy Lifestyle Behavior Scores	Fixed	133,539	11,647	0,000	2,411	0,036	0,015
	News and Development Tracking	-0,979	-0,287	0,774			
	Impact on Work Life	4,304	1,355	0,176			
	Concern	-9,563	-3,134	0,002			
	Precautionary Measures	-1,762	-0,430	0,667			
	Health Literacy	0,039	0,241	0,810			
Linear Regression Analysis							

Indeed, the results of the regression analysis show that there is no significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and health responsibility ($F = 0.848$, $p = 0.516 > 0.05$). This means that these independent variables did not have a significant effect on the participants' health responsibility scores in the context of the study. In other words, the study did not find any evidence to support a causal relationship between these factors and the participants' health responsibility behaviors.

The results of the regression analysis show that there is a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and physical activity ($F=5.448$, $p=0.000 < 0.05$). However, the total variation in physical activity explained by these independent variables is relatively low, accounting for only 4.7% ($R2=0.047$). The specific effects of each independent variable on physical activity are as follows: News and Developments Tracking: News and developments tracking does not have a significant effect on physical activity ($p=0.146 > 0.05$). In other words, the students' engagement with news and current events does not influence their physical activity levels. Work Life Impact: Work life impact also did not significantly affect physical activity ($p=0.665 > 0.05$). The students' work-related experiences do not show a substantial relationship with their physical activity

behaviors. Concern: Concern negatively affects physical activity (ß=-1.548). Higher levels of concern are associated with lower levels of physical activity. Precautionary Measures: Precautionary measures negatively affect physical activity (ß=-2.796). Students who take more precautionary measures in response to the pandemic tend to engage in less physical activity. Health Literacy: Health literacy did not have a significant effect on physical activity (p=0.208 > 0.05). The level of health literacy among the students does not appear to be strongly related to their physical activity levels. In summary, the regression analysis suggests that concern and precautionary measures negatively influence physical activity levels among the students, while news and developments tracking, work life impact, and health literacy do not have significant effects on their physical activity behaviors. However, it is crucial to interpret these results cautiously, considering the relatively low amount of total variation explained by the independent variables.

The results of the regression analysis indicate that there is no significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and nutrition (F=1.417, p=0.217 > 0.05). In other words, these variables do not collectively explain a significant amount of variation in students' nutrition behaviors. The individual effects of each independent variable on nutrition are not statistically significant, as indicated by their p-values: News and Developments Tracking: News and developments tracking does not have a significant effect on nutrition (p=0.416 > 0.05). Work Life Impact: Work life impact does not significantly affect nutrition (p=0.153 > 0.05). Concern: Concern does not have a significant effect on nutrition (p=0.080 > 0.05). Precautionary Measures: Precautionary measures do not significantly affect nutrition (p=0.221 > 0.05). Health Literacy: Health literacy did not have a significant effect on nutrition (p=0.418 > 0.05). In summary, based on this analysis, there is no evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and the nutrition behaviors of the students. It is important to consider these results with caution and potentially explore other factors that may influence students' nutrition habits.

The results of the regression analysis indicate a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and spiritual development (F=6.923, p=0.000 < 0.05). In other words, these variables collectively explain a significant amount of the variation in students' spiritual development. The individual effects of each independent variable on spiritual development are as follows: News and Developments Tracking: News and development tracking decreases spiritual development (ß=-1.687). Work Life Impact: Work life impact does not significantly affect spiritual development (p=0.172 > 0.05). Concern: Concern decreases spiritual development (ß=-3.617). Precautionary Measures: Precautionary measures do not significantly affect spiritual development (p=0.130 > 0.05). Health Literacy: Health literacy does not significantly affect spiritual development (p=0.210 > 0.05). In summary, based on this analysis, there is evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and the spiritual development of the students. However, the direction of these effects is not uniform, as some variables decrease spiritual development while others do not have a significant impact. It is essential to interpret these results carefully and potentially investigate other factors that may influence students' spiritual development.

The results of the regression analysis show that there is a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and interpersonal relationships (F=3.788, p=0.002 < 0.05). In other words, these variables collectively explain a significant amount of the variation in students' interpersonal relationships. The individual effects of each independent variable on interpersonal relationships are as follows: News and Developments Tracking: News and developments tracking does not significantly affect interpersonal relationships (p=0.067 > 0.05). Work Life Impact: Work life impact does not significantly affect interpersonal relationships (p=0.056 > 0.05). Concern: Concern decreases interpersonal relationships (ß=-1.908). Precautionary Measures: Precautionary measures do not significantly affect interpersonal relationships (p=0.263 > 0.05). Health Literacy: Health literacy does not significantly affect interpersonal relationships (p=0.972 > 0.05). In summary, based on this analysis, there is evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and students' interpersonal relationships. The level of concern has a negative impact on interpersonal relationships, suggesting that higher levels of concern are associated with lower levels of interpersonal connections. However, it is important to note that the overall explained variation in interpersonal relationships by these variables is relatively low (R2=0.030, explaining 3% of the variation). Hence, there might be other factors influencing students' interpersonal relationships that were not considered in this analysis. Further research is needed to explore additional contributing factors.

The results of the regression analysis indicate a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and stress management (F=4.869, p=0.000 < 0.05). In other

words, these variables collectively explain a significant amount of the variation in students' stress management. The individual effects of each independent variable on stress management are as follows: News and Developments Tracking: News and developments tracking does not significantly affect stress management (p=0.738 > 0.05). Work Life Impact: Work life impact does not significantly affect stress management (p=0.088 > 0.05). Concern: Concern decreases stress management (ß=-2.585). Precautionary Measures: Precautionary measures do not significantly affect stress management (p=0.864 > 0.05). Health Literacy: Health literacy does not significantly affect stress management (p=0.334 > 0.05). In summary, based on this analysis, there is evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and students' stress management. The level of concern has a negative impact on stress management, suggesting that higher levels of concern are associated with lower stress management levels. However, it is important to note that the overall explained variation in stress management by these variables is relatively low (R2=0.041, explaining 4.1% of the variation). Hence, there might be other factors influencing students' stress management that were not considered in this analysis. Further research is needed to explore additional contributing factors.

The results of the regression analysis indicate a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and overall healthy lifestyle behaviors (F=2.411, p=0.036 < 0.05). In other words, these variables collectively explain a significant amount of variation in students' overall healthy lifestyle behaviors.

The individual effects of each independent variable on overall healthy lifestyle behaviors are as follows:

News and Development Tracking: News and developments tracking does not significantly affect overall healthy lifestyle behaviors (p=0.774 > 0.05).

Work Life Impact: Work life impact does not significantly affect overall healthy lifestyle behaviors (p=0.176 > 0.05).

Concern: Concern decreases overall healthy lifestyle behaviors (ß=-9.563).

Precautionary Measures: Precautionary measures do not significantly affect overall healthy lifestyle behaviors (p=0.667 > 0.05).

Health Literacy: Health literacy does not significantly affect overall healthy lifestyle behaviors (p=0.810 > 0.05).

In summary, based on this analysis, there is evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and students' overall healthy lifestyle behaviors The level of concern has a particularly significant negative impact on overall healthy lifestyle behaviors, suggesting that higher levels of concern are associated with lower overall healthy lifestyle behaviors. However, it is important to note that the overall explained variation in overall healthy lifestyle behaviors by these variables is relatively low (R2=0.015, explaining 1.5% of the variation). Therefore, there might be other factors influencing students' healthy lifestyle behaviors that were not considered in this analysis. Further research is needed to explore additional contributing factors.

DISCUSSION AND CONCLUSION

COVID-19, which is a pandemic disease affecting nearly seven hundred million people all over the world and caused the death of nearly seven million people, has had serious effects on the social, psychological and economic life of societies (COVID - Coronavirus Statistics - Worldometer, n.d.). During the pandemic, people made intense efforts to follow the news and developments related to the outbreak. The pandemic seriously affected work life and led to changes in the working arrangements in many sectors. Individuals had worry various issues, such as the risk of infection, the restriction of social life, the fear of unemployment, the inability to continue education, and the worry of access to food.

In response to the pandemic, individuals have developed awareness of taking precautions, such as paying attention to hand hygiene, using cologne, wearing masks, practicing social distancing, and engaging in prayers (Ertas et al., 2021). The health literacy level of an individual exposed to continuous information flows about this pandemic plays a vital role in acquiring, distinguishing, and comprehending accurate medical information (Seng et al., 2020). Previous studies indicated the importance of health literacy in preventing non-communicable diseases. However, the significance of health literacy in taking precautions against pandemic diseases should not be overlooked (Paakkari & Okan, 2020).

Healthy lifestyle behaviors are defined as set of beliefs and practices that individuals adopt to maintain good health, preserve health, and protect themselves from illnesses. Individuals, who embrace healthy lifestyle behaviors can enhance and sustain their well-being. Therefore, the development of healthy lifestyle behaviors forms the foundation for disease prevention and maintaining health (Celebi et al., 2017). Healthy lifestyle behaviors are associated with reduced mortality, increased life expectancy, and improved well-being. Unhealthy behaviors (such as poor nutrition, lack of physical exercise, tobacco, and alcohol use) contribute to the global burden of disease.

During periods of pandemic diseases such as COVID-19, it is believed that the adoption of unhealthy eating and sedentary behaviors, reduced time spent outdoors, and increased screen time can have adverse effects on public health. This not only affects physical health but also leads to mental disorders. Studies indicate that COVID-19 has led to increased concerns about illness, resulting in depression and stress disorders among individuals (Balanzá–Martínez et al., 2020).

In the context of the COVID-19 pandemic, individuals have a responsibility to support their immune system by choosing a healthy lifestyle. This includes opting for a diet rich in fruits and vegetables, engaging in regular exercise during leisure time, maintaining a healthy body weight, and getting adequate sleep, all of which are crucial for healthy lifestyle behaviors (Naja et al., 2020). During the COVID-19 pandemic, individuals who adopt a healthy lifestyle are reported to have better mental health during quarantine in terms of physical activity, nutrition, and sleep behaviors (Kilani et al., 2020).

In this study, the impact of university students' awareness of the COVID-19 pandemic and their health literacy on healthy lifestyle behaviors was evaluated. Based on the correlation analysis conducted in the study, it was observed that there is a negative correlation between physical activity and concern (r=-0.174), as well as between physical activity and precautionary measures (r=-0.183). This suggests that as students' concerns about COVID-19 increase, their level of physical activity decreases, and as their efforts to take precautions against the pandemic increase, their physical activity decreases as well. There is also a negative correlation between spiritual development and following news and updates about COVID-19 (r=-0.1) and feeling anxious about the pandemic (r=-0.228). Bahar (2008) defines spiritual development as an individual's ability to achieve inner peace and establish a harmonious relationship with the universe. It can be argued that an increase in following news and updates about COVID-19 and the level of concern about the pandemic negatively affect an individual's inner peace.

Similarly, there is a negative correlation between interpersonal relationships and following news and updates about COVID-19 (r=-0.113), feeling anxious about the pandemic (r=-0.138), and precautionary measures (r=-0.122). The concern about contracting COVID-19, efforts to take precautions, and the tendency to follow news and updates about the pandemic may weaken individuals' social communication and relationships with others.

A negative correlation was also found between stress management and feeling anxious (r=-0.206). Stress management involves reducing tension and keeping stress under control. It can be assumed that managing and coping with stress becomes more challenging in situations with higher levels of anxiety.

When examining the regression analysis of the study, a significant causal relationship was found between following news and updates, the impact on work life, feeling anxious, taking precautions, health literacy, and physical activity ($F=5.448$; $p=0.000<0.05$). The concern about the COVID-19 pandemic negatively affects the level of physical activity. Similarly, behaviors related to taking precautions against the pandemic also reduce physical activity. When examining the indicators of physical activity as part of Diedhiou et al.'s (2021) study, a statistically significant decrease was detected in the proportion of individuals who were sufficiently physically active before COVID-19. In a similar study conducted by Bao et al. (2022) with university students, a decrease in physical activity during the pandemic was reported. The decline in physical activities may be attributed to the normalization phase of COVID-19 prevention and control, which involves minimizing outdoor activities and opting for convenience services such as package delivery and takeout due to the development of transportation and technology (Bao et al., 2022).

The regression analysis carried out to determine the causal relationship between spiritual development and awareness of the COVID-19 pandemic, health literacy, and healthy lifestyle behaviors yielded significant results. Following news and updates and feeling anxious negatively affect spiritual development. As spiritual development refers to achieving inner peace, the more students follow news and updates related to COVID-19 and experience an increase in concern about the disease, the more their inner peace will be disrupted, resulting in a decrease in their level of spiritual development.

Additionally, the regression analysis performed to determine the causal relationship between following news and updates, the impact on work life, feeling anxious, taking precautions, health literacy, and interpersonal relationships also yielded significant results. Feeling anxious about COVID-19 reduces the level of interpersonal relationships. The fear and concern of contracting an infection from the people around them weaken interpersonal relationships (Goodwin et al., 2020). During pandemic diseases, both individually and socially, social distancing increases, which may lead to a decrease in social relationships.

Overall, the findings suggest that COVID-19-related concerns and precautionary measures negatively influence individuals' spiritual development and interpersonal relationships, respectively. Moreover, the increased awareness and concern about the pandemic lead to changes in healthy lifestyle behaviors including a decrease in physical activity and the adoption of unhealthy habits like unhealthy eating and sedentary lifestyles (Bao et al., 2022; Diedhiou et al., 2021). These implications highlight the importance of addressing individuals' mental and emotional well-

being during pandemics to support their overall health and promote healthy lifestyle behaviors.

The regression analysis conducted to determine the causal relationship between stress management and awareness of the COVID-19 pandemic, as well as health literacy, yielded significant results. Specifically, it was observed that concerns about contracting COVID-19 reduce individuals' ability to manage stress effectively. In a similar study conducted by Yasmin et al. (2020) on students, it was reported that due to the pandemic, students' stress levels increased day by day, and they found it challenging to control this situation.

These findings suggest that the COVID-19 pandemic and its associated concerns have a significant impact on individuals' stress levels and their ability to cope with stress effectively. The uncertainty and fear surrounding the pandemic can lead to heightened stress and anxiety levels, making it essential to provide adequate support and resources for stress management during such times. By addressing stress management and promoting mental well-being, individuals may be better equipped to handle the challenges posed by the pandemic and maintain their overall health and well-being.

In this study, while some negative correlations were found between students' awareness of COVID-19 and health literacy and their healthy lifestyle behaviors, other correlations were not statistically significant. The research concluded that health literacy does not significantly influence healthy lifestyle behaviors but awareness of COVID-19, particularly concerns and preventive measures, negatively affect these behaviors. Another study conducted with 921 individuals in Türkiye reported that during the COVID-19 pandemic, the risk of contracting the disease increased, dietary habits changed, and the overall quality of life declined (Diedhiou et al., 2021).

This study demonstrates the impact of health literacy levels on healthy lifestyle behaviors. Therefore, public policymakers and healthcare professionals should develop and promote educational programs to enhance health literacy. Encouraging individuals to access accurate and up-to-date information sources on health-related topics is crucial. Promoting the use of reputable websites, government health agencies, and healthcare professionals as sources of information can help in making informed decisions about their health. The influence of the COVID-19 pandemic underscores the importance of creating awareness in improving healthy lifestyle behaviors. Health awareness campaigns and educational materials can encourage greater community participation. Promoting collaboration between healthcare providers, educational institutions, workplaces, and community organizations is essential. Intersectoral cooperation can lead to a holistic approach in promoting healthy lifestyles, which can be particularly effective during pandemics. The results of this study highlight the need for long-term follow-up and in-depth research to understand the long-term effects of healthy lifestyle behaviors.

It is essential to consider some limitations while interpreting the outcomes of this research. The convenience sampling method was used in this study, which may lead to incorrect generalizations to the entire population of Türkiye. Additionally, the online survey design limited the sample to individuals with internet access. The accuracy of the data collected in the research relies on the assumption that participants provided truthful and sincere responses to the surveys.

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Conflict of Interest:
The authors declare that they have no conflict of interest.

Ethical Approval:
Prior to commencing this research, an application was submitted to the Institutional Review Board of Uskudar University for Non-Interventional Studies. The ethics committee, in its meeting on May 27, 2020, with reference number 61351342/2020-254, decided that the research titled "Information, Attitudes, and Practices of the Turkish Society Regarding Covid-19" is ethically appropriate. Quotations have been made in accordance with scientific rules. Additionally, the participation of the subjects in the research was based on voluntariness.

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